WHAT IS CLAIMED IS:

1. A storage device communicating with a host computer and another storage device through a network, said storage device comprising:

an available buffer including a plurality of memory buffers;

an in-use buffer including a plurality of memory buffers already allocated as memory buffers dedicated for communications;

notification means for giving a notice of an available-buffer size to an external inquirer in response to an inquiry made by the external inquirer;

buffer securing means for taking memory buffers having a reserved-buffer size specified in addition to a buffer-reservation target in a request made by an external requester as a request for a buffer reservation out of said available buffer and reserving said taken memory buffers as a reserved buffer for said buffer-reservation target in response to said request for a buffer reservation;

allocation means for allocating said memory buffers of said reserved buffer to said buffer-reservation target to make them said in-use buffer in response to a request made by the external requester as a request to start an application; and

execution means for executing the application

communicating by using said in-use buffer allocated by said allocation means.

2. A storage device according to claim 1 wherein said reserved-buffer size is a product obtained as a result of multiplying a bandwidth by a latency where said bandwidth is defined as an amount of data transmitted in a unit time through a connection whereas said latency is defined as a time period from a time of transmitting data through said connection to a time of receiving an acknowledgement of said data.

3. A storage device according to claim 1, further comprising:

means for taking memory buffers having an additional size out of said available buffer and adding said taken memory buffers to the reserved buffer allocated to the buffer-reservation target in response to a reserved-buffer-updating request made by the external requester as a request to increase said reserved buffer by specifying said buffer-reservation target and a value greater than the present size of said reserved buffer as a new size of said reserved buffer; and

means for taking memory buffers having a decreasing size out of a reserved buffer allocated to a buffer-reservation target and returning said taken memory buffers to said available buffer when decreasing said reserved buffer by specifying said buffer-reservation target and a value smaller than the present size of said reserved buffer as a new size

of said reserved buffer.

4. A storage device according to claim 1 wherein said application is a remote copy reproduction process to copy data stored in said storage device to said another storage device.

5. A storage device according to claim 1 or 4 wherein said buffer-reservation target is an inter-port communication between a network port of said storage device and a network port of said another storage device.

6. A storage device according to claim 1 or 4 wherein said buffer-reservation target is a combination consisting of a port pair and a number indicating a protocol adopted by said application executed by said another storage devices, said port pair being a pair of a network port of said storage device and a network port of said another storage device.

7. A storage device according to claim 1 wherein said buffer-reservation target is a connection between said storage device and a device serving as a communication partner.

8. A storage device according to claim 1, further comprising:

means which includes a cache memory for temporarily storing data read out from disks and gives a notice of an available storage capacity of said cache memory to the external inquirer in response to an inquiry made by the external inquirer; and

means for taking memory buffers having an additional

size from said available buffer and adding said taken memory buffers to a reserved buffer allocated to a buffer-reservation target in response to a reserved-buffer-updating request made by the external requester as a request to increase said reserved buffer by specifying said buffer-reservation target and a value greater than the present size of said reserved buffer as a new size of said reserved buffer.

9. A storage device according to claim 1 wherein said buffer is a buffer for storing data transmitted by adopting a TCP.

10. A storage device according to claim 9 wherein a means for processing a network protocol for communications with said another devices takes the size of said reserved buffer as a maximum value of a congestion window.

11. A storage device according to claim 1 wherein said buffer is a credit for storing data transmitted by adopting a fibre-channel protocol.

12. A storage device according to claim 1 wherein said extraction means for allocating memory buffers as a reserved buffer allocates an area usable as a buffer from a memory in case said available buffer is insufficient.

13. A storage device communicating with a host computer and another storage device through a network, said storage device comprising:

an available buffer including a plurality of memory

buffers;

an in-use buffer including a plurality of memory buffers already allocated as memory buffers dedicated for communications;

a network-interface-information acquisition unit for giving a notice of a size of said available buffer to an external inquirer in response to an inquiry made by an external inquirer;

a buffer control unit for taking memory buffers having a reserved-buffer size specified in addition to a buffer-reservation target in a request made by an external requester as a request for a buffer reservation out of said available buffer and allocating said memory buffers to said buffer-reservation target for making them said in-use buffer in response to a request made by the external requester as a request to start an application; and

an application execution unit for executing an application communicating by using said in-use buffer allocated by said buffer control unit.

14 A storage system comprising a storage device communicating with a host computer and another storage device through a network, and a storage management device communicating with said storage device through the network, wherein:

said storage device comprises:

an available buffer including a plurality of memory

buffers;

an in-use buffer including a plurality of memory buffers already allocated as memory buffers dedicated for communications;

notification means for giving a notice of an available-buffer size to said storage management device in response to an inquiry made by said storage management device;

buffer securing means for taking memory buffers having a reserved-buffer size specified in addition to a buffer-reservation target in a request made by said storage management device as a request for a buffer reservation out of said available buffer and reserving said taken memory buffers as a reserved buffer for said buffer-reservation target in response to said request for a buffer reservation;

allocation means for allocating said memory buffers of said reserved buffer to said buffer-reservation target to make them said in-use buffer in response to a request made by said storage management device as a request to start an application; and

execution means for executing an application communicating by using said in-use buffer allocated by said allocation means; and

said storage management device comprises:

means for inquiring of said storage device a size of said available buffer; and

means for transmitting the request to start said application to said storage device.

15. A storage system according to claim 14 wherein said reserved-buffer size is a product obtained as a result of multiplying a bandwidth by a latency where said bandwidth is defined as the amount of data transmitted in a unit time through a connection whereas said latency is defined as a time period from a time of transmitting data through said connection to a time of receiving an acknowledgement of said data.

16. A storage system according to claim 14 wherein:

said storage device further comprises:

means for taking memory buffers having an additional size out of said available buffer and adding said taken memory buffers to a reserved buffer allocated to a buffer-reservation target in response to a reserved-buffer-updating request made by said storage management device as a request to increase said reserved buffer by specifying said buffer-reservation target and a value greater than the present size of said reserved buffer as a new size of said reserved buffer; and

means for taking memory buffers having a decreasing size out of a reserved buffer allocated to a buffer-reservation target and returning said taken memory buffers to said available buffer when decreasing said reserved buffer by specifying said buffer-reservation target and a value smaller than the present size of said reserved buffer as a new size

of said reserved buffer; and

said storage management device further comprises means for transmitting said reserved-buffer-updating request.

17. A storage system according to claim 14 wherein said application is a remote copy reproduction process to copy data stored in said storage device to said another storage device.

18. A storage system according to claim 14 or 17 wherein said buffer-reservation target is an inter-port communication between a network port of said storage device and a network port of said another storage device.

19. A storage system according to claim 14 or 17 wherein said buffer-reservation target is a combination consisting of a port pair and a number indicating a protocol adopted by said application executed by said another storage device, said port pair being a pair of a network port of said storage device and a network port of said another storage device.

20. A storage system comprising a storage device communicating with a host computer and another storage device through a network, and a storage management device communicating with said storage device through the network, wherein:

said storage device comprises:

a CPU and a memory;

an available buffer on the memory including a plurality of memory buffers;

an in-use buffer on the memory including a plurality of memory buffers already allocated as memory buffers dedicated for communications;

a network-interface-information acquisition unit for giving a notice of an available-buffer size to said storage management device in response to an inquiry made by said storage management device;

a buffer control unit for taking memory buffers having a reserved-buffer size specified in addition to a buffer-reservation target in a request made by said storage management device as a request for a buffer reservation out of said available buffer and reserving said taken memory buffers as a reserved buffer for said buffer-reservation target in response to said request for a buffer reservation;

a network-protocol-processing unit for allocating said memory buffers of said reserved buffer to said buffer-reservation target to make them said in-use buffer in response to a request made by said storage management device as a request to start a remote copy application; and

a remote copy program stored on the memory and executed by the CPU for executing the remote copy application communicating by using said in-use buffer allocated by said network-protocol-processing unit; and

said storage management device comprises:

a CPU and a memory, said CPU executing programs stored

on the memory, said programs inquiring of said storage device a size of said available buffer and transmitting the request to start said remote copy application to said storage device.